In re Patent Application of:
CAIN ET AL.
Serial No. 10/658,357
Filing Date: **SEPTEMBER 9, 2003**
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REMARKS

Applicants appreciate the Examiner's thorough examination of the present application. Claims 1-22 remain pending in the present application, and in view of the arguments presented in detail below, reconsideration of the rejection is requested.

I.   The Claimed Invention

The present invention is directed to a mobile ad hoc network (MANET). As recited in independent Claim 1, for example, the MANET includes a plurality of mobile nodes each including a wireless communications device and a controller connected thereto. In particular, the controller operates in accordance with a multi-layer protocol hierarchy for, at an upper protocol layer, establishing a quality-of-service (QoS) threshold, and, at at least one intermediate protocol layer below the upper protocol layer, determining whether a QoS metric for at least one selected route from at least one source mobile node falls below the QoS threshold. Further, at a lower protocol layer below the at least one intermediate protocol layer, the controller cooperates with the wireless communications device to determine the QoS metric for the at least one selected route, receive data from the at least one source mobile node via the at least one selected route, and adjust signal reception gain based upon a determination that the QoS metric has fallen below the QoS threshold.

II.   The Claims Are Patentable

The Examiner maintained the rejection of Claims 1-22 as being anticipated over U.S. Patent Publication No.

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2003/0161268 to Larson et al. Applicants contend that Claims 1-22 clearly define over the cited reference, and in view of the following remarks, favorable reconsideration of the rejection under 35 U.S.C. §102 is requested.

The Larson publication is directed to a cross-layer integration of functions on three or more protocol layers of a multi-hop network into a single unified mechanism. The protocol layers include the network layer, the link layer and the physical layer. Larson et al. teaches (at paragraph 0052) that "in effect, the unified approach of the invention partially or completely eliminates the need for a layered representation. Instead of having several separate <u>optimization</u> algorithms executing more or less independently on the different protocol layers, a single unified <u>optimization</u> is performed." Moreover, routing, channel access, physical layer functions and admission control are integrated into a single, unified mechanism by using connection parameters including path, channel and one or more physical layer/link parameters.

The Examiner again maintains that Larson et al. teaches establishing a QoS threshold at an upper protocol layer as recited in the above-noted independent claims. As support, the Examiner cites paragraph 0179, lines 13-14 of Larson et al., which set forth that "when a new connection set-up is attempted, the optimisation [sic] of the objective function (or the algorithm) is performed with respect to multiple data rate requirements (given by the application layer)." The Examiner contends that this adaptive application somehow constitutes establishing a QoS threshold as recited in the above-noted independent claims.

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  In the prior Response, Applicants argued that Larson
et al. fails to teach or fairly suggest establishing a QoS
threshold at an upper protocol layer. In particular,
Applicants noted that the text cited by the Examiner (i.e.,
paragraph 0179, lines 5-14) discusses an adaptive application
running on the application layer (e.g., a video or voice-based
application) that maintains a particular level of application
quality despite being used with different data rates.
Applicants emphasized that this is different than establishing
a QoS threshold that pertains to route quality.

  In response, the Examiner now implies that Larson et
al. inherently teaches the recitation of establishing a QoS
threshold. More particularly, the Examiner (Final Office
Action, page 4) states that QoS routing protocols in ad hoc
networks are designed to set up a path from a source node to a
destination node based upon some requirement regarding
bandwidth or delay to be able to support real-time multimedia
applications.

  In relying upon the theory of inherency, the
Examiner must provide a basis in fact and/or technical
reasoning to reasonably support the determination that the
allegedly inherent characteristic <u>necessarily</u> flows from the
teachings of the applied prior art. As the Examiner is aware,
a claim is anticipated only if each and every element as set
forth in the claim is found, either expressly or inherently
described, in a single prior art reference. The identical
invention must be shown in as complete detail as is contained
in the claim.

  It is respectfully submitted that the Examiner again
mischaracterizes the actual teachings of Larson et al. Indeed,

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Larson et al. is concerned with <u>optimization</u> over the network
(e.g. Abstract). This is not <u>establishing a QoS threshold</u> that
pertains to <u>route</u> quality. In other words, the Larson et al.
system and method may result in an optimized or "best path"
being determined, but that path does not necessarily meet an
established threshold and there are no guarantees of quality.

The above-noted independent claims recite that at at
least one intermediate protocol layer below the upper protocol
layer a determination is made whether a QoS route metric for a
selected route(s) falls below the QoS threshold. Moreover, at
a lower protocol layer, signal reception gain is adjusted
based upon a determination that the QoS metric has fallen
below the QoS threshold.

Nothing in Larson et al., let alone the portions
cited by the Examiner, explicitly or inherently teaches that a
QoS threshold is established at an upper protocol layer, and
that the established QoS threshold is used in an intermediate
protocol layer determination and for adjusting signal
reception gain at a lower protocol layer. Accordingly, it is
respectfully submitted that independent Claims 1, 7, 12, and
18 are patentable over the prior art. Their respective
dependent claims, which recite yet further distinguishing
features, are also patentable over the prior art and require
no further discussion herein.

III. CONCLUSION

In view of the foregoing, it is submitted that all
of the claims are patentable. Accordingly, a Notice of
Allowance is respectfully requested in due course. If any
minor informalities need to be addressed, the Examiner is

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encouraged to contact the undersigned attorney at the telephone number listed below.

Respectfully submitted,

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CERTIFICATE OF FACSIMILE TRANSMISSION

I HEREBY CERTIFY that the foregoing correspondence has been forwarded via facsimile number 571-273-8300 to the Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 this 2nd day of December, 2005.

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